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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/931,113	08/16/2001	Masayoshi Hiramoto	10873.792US01	3656

23552 7590 07/15/2003

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EXAMINER
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UHLIR, NIKOLAS J

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 07/15/2003

17

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/931,113

Applicant(s)

HIRAMOTO ET AL.

Examiner

Nikolas J. Uhlir

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-72 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-72 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-52 and 59-72, drawn to a magnetoresistive element, classified in class 428 subclass 692.
  - II. Claims 57-58, drawn to a method for making a magnetoresistive element, classified in class 427, subclass 130.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product could have been made via a different method, such as forming a magnetoresistive film without heat treating the magnetic layers.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. The examiner notes that claims 53-56 have been left out of the restriction requirement in light the fact that they are improper method claims. These claims are improper in light of the fact they require a method comprising "additional" heat treatment, when no method limitations prior to the "additional" heat treatment have been

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recited. If these claims are amended to correct this issue, they will be placed in group II for the same reasons as set forth above.

5. Regardless of whether the applicant elects group I or group II, Claims 1, 19, and 57-58 are generic to a plurality of disclosed patentably distinct species. The following species are considered by the examiner to be patentably distinct:

- Species comprising a magnetoresistive element having either a synthetic (multiple magnetic layers separated by an intermediate) free or synthetic pinned magnetic layers arranged at positions  $m$ , wherein the product of the saturation magnetization  $X$  thickness of odd  $m$  is **substantially equal** to that of even  $m$ .
- Species comprising a magnetoresistive element having either a synthetic (multiple magnetic layers separated by an intermediate) free or synthetic pinned magnetic layers arranged at positions  $m$ , wherein the product of the saturation magnetization  $X$  thickness of odd  $m$  is **different** from that that of even  $m$ .
- Species comprising a magnetoresistive element comprising a synthetic pinned or synthetic free magnetic layer, wherein the product of the saturation magnetization and the thickness of odd  $m$  is different from that of even  $m$ , wherein the synthetic magnetic layer comprises **exactly 2** magnetic layers separated by an intermediate layer.
- Species comprising a magnetoresistive element comprising a synthetic pinned or synthetic free magnetic layer, wherein the product of the saturation magnetization and the thickness of odd  $m$  is different from that of even  $m$ ,

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wherein the synthetic magnetic layer comprises **3 or more** magnetic layers separated by an intermediate layer.

- Species comprising a synthetic pinned or synthetic free magnetic layer, wherein the intermediate layer is required to be **insulative** (thus forming a tunneling magnetoresistive element or a tunneling magnetic junction)
- Species comprising a synthetic pinned or synthetic free magnetic layer, wherein the intermediate layer is required to be **conductive** (thus forming a spin valve structure).

6. The applicant is required under 35 U.S.C. 121 to elect a single disclosed species, even though this requirement is traversed.

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

7. A telephone call was made to Douglas Mueller on 7/01/03 to request an oral election to the above restriction requirement, but did not result in an election being made.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

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8. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhler whose telephone number is 703-305-0179. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on 703-308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0389.

*Nju*  
Nju  
July 11, 2003

  
Paul Thibodeau  
Supervisory Patent Examiner  
Technology Center 1700